

PROCEEDINGS  
OF THE  
BIOLOGICAL SOCIETY OF WASHINGTON

---

A NEW SPECIES OF *PSEUDOPOLYDORA*  
(POLYCHAETA, SPIONIDAE) FROM  
THE SOLOMON ISLANDS

BY WILLIAM J. LIGHT

*Department of Invertebrate Zoology  
California Academy of Sciences  
San Francisco, California 94118*

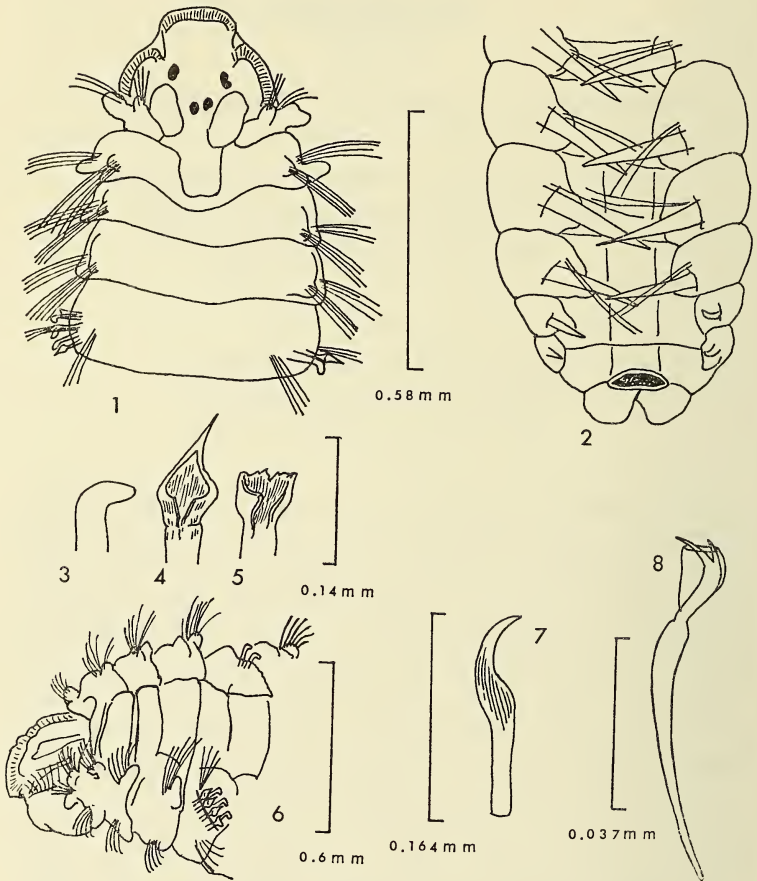
A new spionid polychaete of the genus *Pseudopolydora* Czerniavsky was collected in large numbers from the north coast of Guadalcanal Island in a lagoon at the mouth of the Lunga River by Peter E. Gibbs during the Royal Scientific Expedition to the Solomon Islands in 1965. The animals were taken from the interstices of a sponge growing around submerged tree roots, in association with the cosmopolitan serpulid, *Mercierella enigmatica* Fauvel. The new species was found in water of very low salinity (5.6 ‰). A more complete account of the ecology and faunal associations of this worm may be found in a monograph on the polychaetes of the Solomon Islands (Gibbs, 1971). I wish to thank Dr. Gibbs who kindly provided the specimens upon which this paper is based and in whose honor the species is named.

***Pseudopolydora gibbsi*, new species**

Figures 1-8

*Pseudopolydora* sp., Gibbs, 1971: 173-174.

*Diagnosis:* Prostomium anteriorly entire, no occipital or nuchal cirrus; all notosetae, except posterior hooks, smooth simple capillaries, first present on setiger 1; stout, curved, notopodial hooks in posterior 15-17 segments; neuropodial crotchets from setiger 8, 6-8 per ramus; setiger 5 with 2 types of modified spines: (1) anterior row of stout spathe-like setae, with hollow ends bearing acuminate tips, and (2) posterior row of heavy, curved falcigers; modified spines of setiger 5 not ar-



FIGS. 1-8. *Pseudopolydora gibbsi*, new species. 1, anterior end, dorsal view, palpi removed; 2, posterior end, dorsal view; 3, major spine from posterior row of setiger 5; 4, major spine from anterior row of setiger 5; 5, major spine from anterior row of setiger 5, broken example; 6, anterior end, dorso-lateral view, showing arrangement of modified spines of setiger 5; 7, posterior notopodial hook; 8, neuropodial hooded crotchet.

ranged in double U-shaped row; branchiae from setiger 6, 10-14 pairs; pygidium much reduced, consisting of pair of small, ventral lappets.

*Description:* Largest specimen (holotype) 9 mm long by 0.5 mm wide at broadest point (setiger 5), but most examples only half this size.

Prostomium wide, anteriorly entire, with 2 pairs of eyes arranged

trapezoidally, anterior pair twice as far apart as posterior pair; caruncle extending to middle of setiger 2, occasionally reaching anterior border of setiger 3 (Fig. 1). No trace of occipital or nuchal cirri. First setiger completely suppressed dorsally and ventrally by prostomial caruncle and peristomium, respectively. Well developed, extrusible proboscis present.

Body attenuated over anterior and posterior regions, attaining greatest width over median somites, beginning approximately with setiger 5. Notopodial postsetal lamellae of typical configuration, well formed over first 2-4 setigers, or may be much reduced. Neuropodial postsetal lamellae prominent on setigers 1 and 2, often reduced on 3 and absent on 4. Minute notosetal fascicle present on setiger 1. All setae, except modified spines of setiger 5, neuropodial crotchets and specialized posterior notopodial hooks, consisting of simple, alimbate, smooth, long capillaries numbering about 6 per fascicle.

Setiger 5 with 2 rows of modified major spines forming gentle arc (Fig. 6); anterior (ventral) row consisting of 5-6 stout, spathe-like, distally acuminate setae (Fig. 4), these spines often broken or worn (Fig. 5); posterior (dorsal) row consisting of 3-4 heavy falcigers with tip at right angles to main axis of shaft (Fig. 3). Both dorsal and ventral fascicles of capillary setae also present.

Hooded neuropodial crotchets commencing on setiger 8, 6-8 per ramus, with well developed manubrium (Fig. 8). Posterior 15-17 notopodia bearing 1 or 2 stout, sickle-shaped hooks on each side, together with 2-3 long capillaries (Figs. 2, 7).

Branchiae beginning on setiger 6, generally fully developed from that segment, typically 10-14 pairs, this arrangement not always symmetrical, there often being more on one side than other. Pygidium quite reduced, consisting merely of pair of ventral lappets (Fig. 2).

*Color in alcohol:* Fleshy white, occasionally with few very faint flecks of dark pigment on dorsum of anterior segments.

*Type material:* Holotype (ZB. 1970.880) and 26 paratypes are deposited in Porifera-Polychaeta Section of British Museum (Natural History).

*Type-locality:* Mouth of Lunga River, Guadalcanal Island (9° 24' 30" S, 160° 01' 30" E), from interstices of sponge, in association with *Mercierella enigmatica*.

*Remarks:* *Pseudopolydora gibbsi* resembles *P. antennata* (Claparède, 1870) in the configuration of the anterior modified setae on setiger 5. It also resembles *P. reishi* Woodwick, 1964, in that the modified major spine series does not form a U- or J-shaped double row, as generally seen in species of *Pseudopolydora*. *P. gibbsi* may be differentiated from *P. antennata* by the absence of an occipital cirrus and in exhibiting an entire prostomium. It is distinguished from *P. reishi* and *P. antennata* in the absence of a pygidial funnel. *P. pigmentata* Woodwick, 1964, also lacks an occipital cirrus, but there is only one pair of eyes, no noto-

setae on setiger 1 and the anterior row of modified setae on setiger 5 consists of limbate capillaries.

The hooded neuropodial crotchets exhibit an overall configuration intermediate between that of *Pseudopolydora* and the genus *Polydora* Bosc; the apical tooth is less closely imbricated over the main fang than in most species of *Pseudopolydora* but more so than in most species of *Polydora*, with both forming an angle of 90° with the main shaft. Their commencement on setiger 8 is consistent with *Pseudopolydora*. The presence of only a few simple capillaries differs from the dense, 3-tiered fascicles of heteromorphic setae generally seen in species of *Pseudopolydora*, such as *P. kemp*i (Southern, 1921) and *P. paucibranchiata* (Okuda, 1937; 232, 234, Fig. 12b; see also Imajima and Hartman, 1964: 287; Light, 1969: 544).

The posterior notopodial hooks are unique for species of this genus. Their close resemblance to similar hooks in *Boccardia hamata* (Webster), Blake, 1966, as well as to those of the *Polydora hoplura-colonia* complex (see Light, 1969: 540), indicates that such specialization of the posterior notosetae must be incipient in the entire polydorid line, having developed independently several times. Similarly, the tendency towards reduction of the pygidium into small lappets is also seen in all three genera.

*Pseudopolydora gibbsi* appears to be quite specialized by virtue of the development of the major spines in the anterior row of setiger 5, the reduced number of crotchets in each ramus, the absence of an occipital cirrus and the presence of highly modified posterior notopodial hooks. The only other species of *Pseudopolydora* known to possess modified posterior notosetae is *P. corallicola* Woodwick, 1964, from Eniwetok Island. In this form the posterior notosetae are awl-shaped and grouped together in conical bundles, a condition very similar to that seen in the *Polydora armata-caulleryi* complex (see Light, 1969: 542).

#### LITERATURE CITED

- BLAKE, J. A. 1966. On *Boccardia hamata* (Webster), new combination (Polychaeta, Spionidae). Bull. S. Calif. Acad. Sci. 65(3): 176-184, 11 figs.
- CLAPARÈDE, E. 1870. Les Annélides Chétopodes du Golfe de Naples. Mem. Soc. Phys. Hist. Nat. Genève 20 (pt. 1):1-225, 31 pls.
- GIBBS, P. E. 1971. The polychaete fauna of the Solomon Islands. Bull. British Mus. (Nat. Hist.), Zool. 21(5):99-211, 17 figs.
- IMAJIMA, M., AND O. HARTMAN. 1964. The polychaetous annelids of Japan. Part II. Allan Hancock Foundation Publ., Occ. Pap. 26: 239-452, pls. 36-38.
- LIGHT, W. J. 1969. *Polydora narica*, new species, and *Pseudopolydora kemp*i *californica*, new subspecies, two new spionids (Annelida: Polychaeta) from central California. Proc. Calif. Acad. Sci. 36(18):531-550, 13 figs., 2 tables.

- OKUDA, S. 1937. Spionoform polychaetes from Japan. Jour. Fac. Sci. Hokkaido Imp. Univ., ser. VI, Zool. 5:217-254, 27 figs.
- SOUTHERN, R. 1921. Fauna of the Chilka Lake. Polychaeta of the Chilka Lake and also of fresh and brackish waters in other parts of India. Mem. Indian Mus. 5:563-659, 13 pls., 18 textfigs.
- WOODWICK, K. H. 1964. *Polydora* and related genera (Annelida, Polychaeta) from Eniwetok, Majuro, and Bikini Atolls, Marshall Islands. Pacific Sci. 18:146-159, 28 figs., 3 tables.

